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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,192

11/18/2003

Laszlo Domjan

54729/P005US/10304870

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03/04/2005

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EXAMINER

DINH, JACK

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,192

Applicant(s)

DOMJAN ET AL.

Examiner

Jack Dinh

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5, 25, 27-52, 54, 55, 57 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-24, 26, 53 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>0205</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0204, 0504, 0604, 0804</u> . | 6) <input checked="" type="checkbox"/> Other: <u>DETAILED ACTION</u> . |

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention. Group I, claims 1-3, 6-24, 26, 53 and 56 are directed to a species of head mounted display wherein multiple reflections are created by illuminating the display screen from a plurality of directions. Group II, claims 4, 5, 25, 27-52, 54, 55, 57 and 58 are directed to a species of head mounted display wherein multiple reflections are created by illuminating the display screen with light beams of differing polarizations.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 53 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with James Glenn on 02/18/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-3, 6-24, 26, 53 and 56. Affirmation of this election must be made by applicant in replying to this Office action. Claims 4, 5, 25, 27-52, 54, 55, 57 and 58 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

2. The Applicant is reminded to update the status of the missing information under the "cross-reference to related applications" section. Appropriate correction is required.

Claim Objections

3. Claims 20 and 22 are objected to because of the following informalities. Regarding claim 20, line one, “multiply” should be changed to “multiple”. Regarding claim 22, line 2, “director” should be changed to “redirector”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding claim 7, it is unclear of which component disclosed is able to optically adjust the numerical aperture.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 8-15, 17-21, 23, 53 and 56 are rejected under 35 U.S.C. 102(b) as being unpatentable by Corbin (US 6,271,808).

Regarding claim 1, Corbin (figure 4) is interpreted as disclosing a method of generating multiple independent images from a single display screen, wherein the method comprising illuminating the display screen **350** with a plurality of sources **20** and **30** to create a plurality of display sub-images, and focusing the display sub-images with a display lens **310**, wherein each display sub-image is redirected along one of a plurality of sub-paths from a point proximate to the focal point of the display sub-images (col. 7, lines 39-55).

Regarding claim 2, Corbin (figure 4) is interpreted as further disclosing that each source illuminates the display screen from a different direction (col. 6, lines 33-36).

Regarding claim 3, Corbin (figure 4) is interpreted as further disclosing that sub-path of each display sub-image is associated with the direction of the source creating the display sub-image (col. 7, lines 39-55).

Regarding claim 8, Corbin (figure 4) is interpreted as disclosing a method of transmitting different images to each eye of a user using a single display screen **350**, the method comprising creating a plurality of sub-images of the single display screen wherein the sub-images are focused by a lens **310** proximate to the display screen, and redirecting each sub-image to one of a plurality of sub-paths from a point proximate to the focal point of the sub-images (col. 7, lines 39-55).

Regarding claims 9-10, Corbin (figure 4) is interpreted as further disclosing of displaying on the display screen a plurality of interlaced data streams, wherein each data stream is linked with a direction of light illuminating the display screen, wherein a first data stream is linked with a first source illuminating the display screen from a first direction and a second data stream is linked with a second source illuminating the display screen from a second direction, and wherein the display screen is illuminated by the first source when the first data stream is displayed and illuminated by the second source when the second data stream is displayed (col. 2, line 40 – col. 3, line 16).

Regarding claim 11, Corbin (figure 4) is interpreted as further disclosing of focusing each sub-image to a focal point of the lens, and arranging a splitter proximate to the lens focal point (col. 7, lines 39-55).

Regarding claim 12, Corbin (figure 4) is interpreted as further disclosing that each sub-path is intended for viewing by a specific eye of a user (col. 7, lines 39-55).

Regarding claim 13, Corbin is interpreted as further disclosing that the data streams generated a three-dimensional image when viewed by the eyes of the user (col. 2, line 40 – col. 3, line 16).

Regarding claim 14, Corbin (figure 4) is interpreted as disclosing a head mounted display for generating images comprising means 20 and 30 for illuminating a display screen 350 from a

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plurality of directions (col. 6, lines 33-36), wherein a plurality of display sub-images of a display screen are created, means of focusing **310** the sub-images, and means **320** proximate to the focal points of the sub-images for redirecting each sub-image along one of a plurality of sub-paths (col. 7, lines 39-55).

Regarding claim 15, Corbin (figure 4) is interpreted as further disclosing that source light incident upon the display screen from a first direction, wherein first light direction causing a sub-image to be focused to a first focal point, and source light incident upon the display screen from a second direction, wherein second light direction causing a sub-image to be focused to a second focal point (col. 7, lines 39-55).

Regarding claim 17, Corbin (figure 4) is interpreted as further disclosing a first reflective surface **320** positioned to redirect light focused to the first focal point along a first sub-path, and a second reflective surface **320** positioned to redirect light focused to the second focal point along a second sub-path (col. 7, lines 39-55).

Regarding claim 18, Corbin is interpreted as further disclosing that a plurality of data streams are alternately displayed on the display screen, and wherein each data stream is linked with either the first or the second light direction (col. 2, line 40 – col. 3, line 16).

Regarding claim 19, Corbin is interpreted as further disclosing that the display screen is illuminated from the first light direction only when a first data stream is displayed, and the

display screen is illuminated from the second light direction only when a second data stream is displayed (col. 2, line 40 – col. 3, line 16).

Regarding claim 20, Corbin (figure 4) is interpreted as disclosing a system for generating multiple images comprising a display screen **350** illuminated by a plurality of light sources **20** and **30** to generate a plurality of sub-images, optics **310** arranged proximate to the display screen positioned to focus the sub-images, and at least one redirector **320** arranged proximate to the focal point of at least one sub-image, the redirector operable for redirecting the sub-image along one of a plurality of optical sub-paths (col. 7, lines 39-55).

Regarding claim 21, Corbin (figure 4) is interpreted as further disclosing that each source illuminates the display screen from a different direction (col. 6, lines 33-36).

Regarding claim 23, Corbin is interpreted as further disclosing a plurality of data streams alternately displayed on the display screen, wherein each data stream is linked with at least one light source, and wherein the display screen is illuminated by the light source linked with the data stream when the data stream is displayed (col. 2, line 40 – col. 3, line 16).

Regarding claim 53, Corbin (figure 4) is interpreted as disclosing a system for generating multiple images, wherein the system comprising a display screen **350** illuminated by at least one light source **20** and **30**, a lens **310** that focuses light reflected from the display screen, and a

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splitter **320** placed proximate to the focal point of light from the at least one light source (col. 7, lines 39-55).

Regarding claim 56, Corbin (figure 2) is interpreted as further disclosing that the splitter is an asymmetric V-mirror **100** and **110**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corbin (US 6,271,808), as applied in claim 1, in view of Ferguson (US Patent 6,147,805).

Regarding claim 6, Corbin is interpreted as disclosing all the claimed limitations, as described above except for forming a real image along at least one sub-path. Within the same field of endeavor, Ferguson (figure 7a) is interpreted as disclosing the teaching of forming a real image 30 along a sub-path (col. 6, lines 37-48). Therefore, it would have been obvious to one of ordinary skill in the art at the time the inventions was made to form a real image along the sub-path, for the purpose of forming a magnified virtual image.

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7. Claims 16, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corbin (US 6,271,808), as applied in claims 14 and 20.

Regarding claim 16, Corbin (figure 4) is interpreted as further disclosing a means for blocking light **360** and **370**. Corbin is interpreted as disclosing all the claimed limitations except that the light blocking means is interposed between the focusing means and the splitting means. However, based on the functionality of the blocking light means **360** and **370**, it would be appropriate to position them any where along the entire beam path. In addition, the Applicant has not disclosed any unexpected results of this difference would have over that of the prior art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the inventions was made to position the light blocking means between the focusing means and the splitting means, for the purpose of minimizing the number of components between the display and the focusing lens.

Regarding claim 22, Corbin (figure 4) is interpreted as further disclosing an aperture stop **360** and **370**, wherein the light generating each sub-image may be selectively prevented from striking the at least one reflector (col. 7, lines 39-55). Corbin is interpreted as disclosing all the claimed limitations except that the aperture stop is interposed between the optics and the at least one redirector. However, based on the functionality of the blocking light means **360** and **370**, it would be appropriate to position them any where along the entire beam path. In addition, the Applicant has not disclosed any unexpected results of this difference would have over that of the prior art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

inventions was made to position the light blocking means between the focusing means and the splitting means, for the purpose of minimizing the number of components between the display and the focusing lens.

Regarding claim 24, Corbin is interpreted as disclosing all the claimed limitations except for a light source reflector. However, such light source reflector or the half-mirror and its intended functionality are well known in the art. The half-mirror can be integrated into and positioned in the system depending on the position and configuration of the light source and the display screen; all of which are within the knowledge of one skilled in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the inventions was made to use the half-mirror, for the purpose of reflecting and transmitting the light beams.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corbin (US 6,271,808), as applied in claim 20, in view of Opey (US Patent 6,246,383).

Regarding claim 26, Corbin is interpreted as disclosing all the claimed limitations, as described above except that the redirectors are partially-reflective surfaces interposed between the display screen and the light source. Within the same field of endeavor, Opey (figure 1a) is interpreted as further disclosing such configuration wherein the redirectors 7 and 9 are partially-reflective surfaces interposed between the display screen 3 and the light source 27. The redirector can be position in numerous configurations depending on the position and configuration of the light source and the display screen. Such variation in positions is within the knowledge of one skilled in the art depending on specific application. Therefore, it would have

been obvious to one of ordinary skill in the art at the time the inventions was made position the redirectors that are partially-reflective surfaces interposed between the display screen and the light source, for the purpose of further minimizing the size of the device since the beam can travel on either side of the partially-reflective redirector.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh


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